IN THE CLAIMS:

Please amend claim 1 as follows:

1. (currently amended) A method of ~~treating a surface of~~ etching a sample having a gate electrode film and a film underlying the gate electrode film and provided on a Si substrate in which a minimum feature size of the gate electrode film is 1 μm or smaller and a thickness of the underlying film is 6 nm or smaller, and in which the gate electrode film is etched to form a fine pattern comprising lines and spaces having a wide part and a narrow part, comprising the steps of:

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arranging the sample on a stage provided in a chamber;

continuously supplying an etching gas into the chamber and generating a plasma from the etching gas;

applying an rf bias at a frequency of 100 kHz or higher to the stage independently of the generation of the plasma; and

on-off modulating the rf bias at a frequency of 100 Hz to 10 kHz ~~to perform etching treatment of the sample in which a minimum feature size of the gate electrode film is 1 μm or smaller and a thickness of the underlying film is 6 nm or smaller~~ during etching of the gate electrode film.

2. (previously amended) A method according to claim 1, wherein the plasma is a high-density plasma having an electron density of $1 \times 10^{10} cm^{-3}$ or higher.

3. (original) A method according to claim 1, wherein the etching gas is a mixed gas of chlorine and oxygen.

4. (previously amended) A method according to claim 1, wherein the step of arranging the sample on a stage includes holding the sample on the stage by electrostatic chucking, the sample being treated by applying the rf bias to the stage independently of the plasma generation and time modulating the rf bias.

5. (original) A method according to claim 4, wherein the electrostatic chucking of the sample is effected by a dipole type electrostatic chuck.

6. (previously amended) A method according to claim 1, wherein the underlying film which underlies the gate electrode film is a gate oxide film.

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7. (previously amended) A method according to claim 1, wherein the gate electrode film is a polysilicon film or a multi-layered film including a polysilicon film.

8. (original) A method of treating a surface of a sample, comprising the steps of:

arranging a sample on a stage provided in a chamber;

continuously supplying an etching gas into the chamber and generating a plasma from the etching gas by using microwaves;

applying an rf bias at a frequency of 100 kHz to 10 MHz to the stage independently of the generation of the plasma;

on-off modulating the rf bias at a frequency of 100 Hz to 10 kHz; and

setting a Vpp value of the rf bias voltage in the on state to 100V or higher, whereby the surface of the sample is treated.

9. (original) A method according to claim 8, wherein the plasma is an ECR plasma using microwaves of 2.45 GHz.

10. (original) A method according to claim 8, wherein the plasma is an ECR plasma using microwaves of 100 MHz to 1 GHz.

11. (original) A sample surface treating apparatus comprising:

a stage which is provided in a chamber and on which a sample to be subjected to a surface treatment is to be placed;

etching gas supplying means for continuously supplying an etching gas for plasma generation into the chamber;

plasma generating means for generating a high-density plasma in the chamber;

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a bias power supply for applying a bias voltage of 100 kHz or higher to the stage independently of the plasma generation; and

pulse modulating means for modulating the bias power supply at a frequency of 100 Hz to 10 kHz,

wherein a surface treatment in which the minimum feature size is 1 μm or smaller can be performed on a sample placed on the stage.

12. (original) An apparatus according to claim 11, wherein an amplitude of the rf voltage of 500V or higher can be generated when the frequency of the rf power supply is 15 MHz or lower, and an amplitude of the rf voltage of 800V or higher can be generated when the frequency of the rf power supply is higher than 15 MHz.

13. (original) An apparatus according to claim 11, wherein the high-density plasma is generated by one of an Electron Cyclotron Resonance system and an Inductively Coupled Plasma system.

14. (original) A sample surface treating apparatus comprising:

a stage which is provided in a chamber and on which a sample to be subjected to a surface treatment is to be placed;

etching gas supplying means for continuously supplying an etching gas for plasma generation into the chamber;

plasma generating means for generating a high-density plasma in the chamber by using microwaves;

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a bias power supply for applying a bias voltage of 100 kHz to 10 MHz to the stage independently of the plasma generation; and

pulse modulating means for modulating the bias power supply at a frequency of 100 Hz to 10 kHz,

wherein the amplitude of the rf voltage as the bias power supply is set to 100V or higher.

15. (original) An apparatus according to claim 14, wherein said plasma generating means uses electron cyclotron resonance by using microwaves whose frequency is 2.45 GHz.

16. (original) An apparatus according to claim 14, wherein said plasma generating means uses electron cyclotron resonance by using microwaves whose frequency is 100 MHz to 1GHz.

Please add the following new claims:

17. (new) A method according to claim 1, wherein the etching of the gate electrode film is effected with substantially no aspect ratio dependence.

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18. (new) A method according to claim 17, wherein the etching of the gate electrode film is effected so that an etch depth of the wide part is substantially equal to an etch depth of the narrow part.